

What is claimed is:

1. A cold folding method for a hollow tube of magnesium material, wherein the method uses an apparatus comprising:

    a male mold, movable up and down, having a male lower surface portion at a lower portion thereof, a male side surface portion at opposite sides thereof, a male curved surface portion between the side ends of the lower surface portion and the side surface portion, a male lower protection member at the lower surface portion and male side portion protection members at the opposed sides of the side surface portions,

    female molds, in a paired configuration, each having a female front surface portion, a female upper surface portion, a female curved surface portion between the female front surface portion and the female upper surface portion, a front portion guide member at the front surface portion, and an upper portion guide member at the upper surface, the front portion guide member and the upper portion guide member being located at the lower position of the male mold in a spaced confronting relation with each other,

    wherein the method comprising the steps of:

        providing an inner rib at opposite sides of a hollow square tube made of magnesium material,

        accommodating a middle portion of the square tube, having opposed ends received in the upper portion guide member of the female molds, in an inner portion of the lower portion protection member of the male mold, and

        lowering the male mold to fold the square tube by the combination of the male curved surface portion of the male mold and the female curved surfaces of the female molds.

2. A cold folding method for a hollow tube of magnesium material according to claim 1, in which a curved surface of the curved surface portion of the male mold is as large as 4.5 times or more of a curved surface of a folding diameter of the square tube.

3. A cold folding method for a hollow tube of magnesium material according to claim 1, in which the inner ribs are positioned, in a depressed configuration, on the opposite sides of the folded portion of the square tube such that each of the inner ribs is longer than a length of the curved surface.

4. A cold folding method for a hollow tube of magnesium material according to claim 1, in which the lower portion protection member on the both sides of the lower surface portion of the male mold and the upper portion guide member on the both sides of the upper surface portion of each of the female molds are formed to accommodate therein the square tube.

5. A cold folding method for a hollow tube of magnesium material, wherein the method uses an apparatus comprising:

a male mold, movable up and down, having a recessed surface portion having a recess portion of the same diameter as a radius of the tube, a male lower surface portion, a male side surface portion on the both sides of the male lower surface portion, a male curved surface portion connecting the male lower surface portion and the male side surface portion, the male recess surface portion being formed continuously in the male lower surface portion, the male side surface portion and the male curved surface portion, and a male abutting member on the opposite sides of the male lower surface portion, the male side surface portion and the male curved surface portion,

female molds of a paired configuration, movable back and forth, having a female front surface recess portion having a recess of the same diameter as a radius of the tube on a front surface, a female upper surface recess portion having a recess of the same diameter as a radius of the tube on an upper surface, a female curved surface portion on a coupling portion between the front surface and the upper surface, a female curved

surface portion on a coupling portion between the female front surface recess portion and the female upper surface recess portion, a female abutment portion formed continuously on the opposed sides of each of the female front surface recess portion, the female curved surface portion and the female upper surface recess portion,

wherein the method comprising the steps of:

accommodating, inside the male recess surface portion of the male mold and the female curved surface portions of the female molds, the opposed ends of the hollow tube of a magnesium material into the female upper surface recess portions of the female molds, and

lowering the male mold to fold the tube by the combination of the male curved surface portion on the lower surface of the male mold and the female curved surface portion of the female molds.

6. A cold folding method for a hollow tube of magnesium material according to claim 5, in which the male abutment portion is formed on the opposed sides of the male recess surface portion on the lower surface of the male mold, the male recess surface portion having a recess of the same diameter as a radius of the tube on the opposed sides, and the female abutment portion abutting against the male abutment portion is formed on the opposed sides of the female recess surface portion on the front surface and the upper surface of the female molds and on the opposed sides of the female curved surface portion of the coupling portion between the front surface and the upper surface.

7. A cold folding method for a hollow tube of magnesium material according to claim 5, in which the curved surface of the male curved surface portion of the male mold is folded to an extent that the curved surface becomes in the range of 3.2 to 3.5 times as the folding diameter of the tube.